CLAIMS

What is claimed is:

1. A system for dispensing items comprising;

a dispenser comprising a plurality of dispensing paths for dispensing said items;

a sensing unit for measuring a physical characteristic of each of said dispensed items;

a plurality of container chutes for directing each of said dispensed items, the measured physical characteristic of which is within a predetermined range of physical characteristics, to containers; and

a plurality of diversion chutes for diverting each of said dispensed items, the measured physical characteristic of which is greater than or less than said predetermined range of physical characteristics, away from said containers.

2. The system of claim 1, wherein said dispenser comprises a dispensing head positioned adjacent to each of said plurality of dispensing paths to receive said dispensed items.

3. The system of claim 2, wherein said dispensing head comprises:

at least one holding chamber, wherein said at least one holding chamber directs each of said dispensed items, the measured physical characteristic of which is within said predetermined range of physical characteristics, to one of said container chutes and diverts each of said dispensed items, the measured physical characteristic of which is greater than or less than said predetermined range of physical characteristics, to one of said diversion chutes.

4. The system of claim 3, wherein said at least one holding chamber comprises two doors mounted pivotally to said dispensing head.

5. The system of claim 2, wherein said dispensing head further comprises:

a first chamber;

a second chamber; and

a bifurcation device for directing items to one of said first chamber and said second chamber.

6. The system of claim 2, further comprising:

a star wheel, wherein said star wheel comprises a plurality of container-receiving grooves for positioning each of said containers in alignment with one of said dispensing heads and one of said container chutes to receive said dispensed items.

7. The system of claim 6, wherein said star wheel further comprises:

a plurality of apertures, wherein each of said plurality of diversion chutes communicates with at least one of said plurality of apertures and wherein said star wheel positions each of said plurality of container chutes and each of said plurality of diversion chutes in alignment with a respective one of said dispensing heads.

8. The system of claim 6, further comprising:

a rotation drive for rotating said star wheel, wherein said star wheel positions a respective each of said containers, each of said plurality of container chutes, and each of said plurality of diversion chutes in alignment with a respective one of said dispensing heads.

9. The system of claim 1, wherein said physical characteristic comprises a volume, a weight, or a density of each of said dispensed items.

10. The system of claim 2, wherein each of said plurality of dispensing paths comprises one or more item-dispensing channels and wherein said sensing unit and said dispensing head are positioned adjacent to each of said one or more item-dispensing channels.

11. The system of claim 1, further comprising;

a control unit for receiving said measured physical characteristic of each of said dispensed items from said sensing unit and comparing said measured physical characteristic of each of said dispensed items to a predetermined range of physical characteristics for that item.

12. The system of claim 11, further comprising:

a rotation drive for rotating said dispenser; and

at least one vibration device for vibrating each of said dispensing paths,

wherein said control unit controls a rotational speed of said rotation drive and a vibration of said at least one vibration device, so that said dispensing paths dispense said items singularly.

13. The system of claim 2, further comprising:

a control unit, wherein said sensing unit transmits said measured physical characteristic of each of said dispensed items to said control unit and wherein said control unit activates said dispensing head to direct each of said dispensed items, the measured physical characteristic of which is within said predetermined range of physical characteristics, to one of said plurality of container chutes.

14. The system of claim 13, wherein said control unit activates said dispensing head to divert each of said dispensed items, the measured physical characteristic of which is greater than or less than said predetermined range of physical characteristics, to one of said diversion chutes.

15. The system of claim 1, further comprising:

a rejection system, wherein said rejection system comprises a rejection conveyor positioned in communication with said plurality of diversion chutes.

16. The system of claim 15, wherein said rejection conveyor conveys said diverted items from said diversion chutes to a rejection bin.

17. The system of claim 1, wherein said dispenser comprises:

a feeder bowl for receiving said items and for supplying said items to said plurality of dispensing paths;

a first vibration device for vibrating said feeder bowl;

a rotation drive for rotating said each of said dispensing paths; and

at least one second vibration device for vibrating each of said dispensing paths, wherein said control unit controls a rotational speed of said rotation drive and a vibration of said at least one second vibration device, such that said dispensing paths dispense said items singularly.

18. A dispensing system comprising:

a rotary, vibratory dispenser for receiving and dispensing items comprising:

a rotation drive for rotating said dispenser;

a plurality of dispensing paths; and

at least one vibration device for vibrating said plurality of dispensing paths, so that said plurality of dispensing paths dispenses said items singularly;

at least one sensing unit for measuring a physical characteristic of each of said singularly-dispensed items;

a plurality of container chutes for directing each of said singularly-dispensed items, the measured physical characteristic of which is within a predetermined range of physical characteristics, to containers; and

a plurality of diversion chutes for diverting each of said singularly-dispensed items, the measured physical characteristic of which is greater than or less than said predetermined range of physical characteristics, away from said containers.

19. A system for dispensing items comprising;

a dispenser comprising a plurality of dispensing paths for dispensing said items;

a sensing unit for measuring a physical characteristic of each of said dispensed items;

a plurality of container chutes for directing each of said dispensed items, the measured physical characteristic of which is within a predetermined range of physical characteristics, to containers; and

a plurality of buckets for receiving each of said dispensed items, the measured physical characteristic of which is greater than or less than said predetermined range of physical characteristics.

20. A dispensing system comprising:

a dispenser for receiving and dispensing items comprising:

a plurality of dispensing paths

at least one rotation drive for rotating said plurality of dispensing paths; and

at least one vibration device for vibrating said plurality of dispensing paths, such that said plurality of dispensing paths dispenses said items singularly;

at least one sensing unit for measuring a physical characteristic of each of said singularly-dispensed items;

a plurality of container chutes for directing each of said singularly-dispensed items, the measured physical characteristic of which is within a predetermined range of physical characteristics, to containers; and

a plurality of diversion chutes for diverting each of said singularly-dispensed items, the measured physical characteristic of which is greater than or less than said predetermined range of physical characteristics, away from said containers.

21. A dispensing method comprising the steps of:

dispensing items from a dispenser;

measuring a physical characteristic of each of said dispensed items;

directing each of said items the measured physical characteristic of which is within a predetermined range of physical characteristics to a container chute; and

diverting each of said items the measured physical characteristic of which is greater than or less than said predetermined range of physical characteristics to a diversion chute.

22. The method of claim 21, further comprising the step of:

guiding said diverted items to a rejection conveyor.

23. The method of claim 22, further comprising the step of:

conveying said diverted items from an outlet of said diversion chute to a rejection bin.

24. The method of claim 21, further comprising the steps of:

identifying each of said dispensed items, the measured physical characteristic of which is within a predetermined range of physical characteristics; and

identifying each of said dispensed items, the measured physical characteristic of which is greater than or less than a predetermined range of physical characteristics.

25. The method of claim 21, wherein the step of measuring a physical characteristic of each of said dispensed items comprises the step of measuring a density, a weight, or a volume of each of said dispensed items.

26. The method of claim 21, wherein the step of dispensing items comprises the step of dispensing items from a plurality of item-dispensing channels.

27. The method of claim 21, wherein the step of directing said items to said container chute comprises the step of directing a predetermined quantity of items to said container chute.

28. The method of claim 21, further comprising the steps of:

directing said items through said container chute to a container.

29. A dispensing method comprising the steps of:

dispensing items singularly from a rotary, vibratory dispenser;

measuring a physical characteristic of each of said singularly-dispensed items;

directing each of said singularly-dispensed items, the measured physical characteristic of which is within a predetermined range of physical characteristics to a container;

diverting each of said dispensed items, the measured physical characteristic of which is greater than or less than said predetermined range of physical characteristics away from said container;

conveying said diverted items to a rejection bin.

30. A dispensing method comprising the steps of:

dispensing items from a dispenser;

measuring a physical characteristic of each of said dispensed items;

directing each of said items the measured physical characteristic of which is within a predetermined range of physical characteristics to a container chute; and

diverting each of said items the measured physical characteristic of which is greater than or less than said predetermined range of physical characteristics to a bucket.